

WHAT IS CLAIMED IS:

1. An apparatus for controlling an electrical device using a bio-signal extracted from the movement of a user's face, comprising:

 a bio-signal detection means for detecting the bio-signals generated when the user shuts his/her mouth and when the user moves his/her head left and right; and

 a means for controlling the electrical device for analyzing the bio-signal detected in the bio-signal detection means to control the electrical device according to a command of the user.

2. An apparatus for controlling an electrical device using a bio-signal extracted from the movement of a user's face, comprising:

 a bio-signal detection unit for detecting the bio-signal when the user shuts his/her mouth and when the user moves his/her head left and right;

 a bio-signal amplification unit for amplifying the amount of the bio-signal detected in the bio-signal detection unit;

 an A/D converter for converting the amplified bio-signal into the bio-signal of a digital mode;

 a control unit for analyzing the bio-signal of the digital mode to determine a corresponding command of the user and then generating a predetermined command of the user; and

 a transmission unit for transmitting the determined command to the electrical device via infrared signal.

3. The apparatus as claimed in claim 2, wherein if the user shuts his/her mouth twice, the control mode of the electrical device is switched from an inactive (OFF) mode to an active (ON) mode or from the active mode (ON) to the inactive mode (OFF), if the user moves his/her head left (right), left (right) movement is made between command items of the electrical device, and if the user shuts his/her mouth once, the predetermined command item is selected.
4. The apparatus as claimed in claim 2, wherein the left (right) movement between the command items of the electrical device is performed only when the user moves his/her head from the center to the left (right) side.
5. The apparatus as claimed in claim 2, wherein the bio-signal detection unit has a predetermined number of electrodes attached to the user's body portion.
6. The apparatus as claimed in claim 5, wherein the body portion is the forehead of the user.
7. The apparatus as claimed in claim 5, wherein the number of the electrode is two.
8. The apparatus as claimed in claim 7, wherein the two electrodes are positioned under "International 10-20 System of Electrode Placement".

9. The apparatus as claimed in claim 8, wherein the two electrodes are positioned at Fp1 and Fp2 locations of the forehead of the user.

10. A method for controlling an electrical device using a bio-signal extracted from the movement of a user's face, comprising the steps of:

detecting the bio signals generated when the user shuts his/her mouth and when the user moves his/her head left and right; and

analyzing the bio-signal detected in the bio-signal detection means to control the electrical device according to a command of the user.

11. A method of controlling an electrical device using a bio-signal extracted from the movement of a user's face, comprising the steps of:

detecting the bio-signal when the user shuts his/her mouth and when the user moves his/her head left and right;

amplifying the amount of the detected bio-signal and then converting the amplified bio-signal into the bio-signal of a digital mode;

analyzing the converted bio-signal to determine a corresponding command of the user and then generating the determined command; and

transmitting the generated command to the electrical device via infrared rays.

12. The method as claimed in claim 11, wherein if the user shuts his/her mouth twice, the control mode of the electrical device is switched from an

inactive (OFF) mode to an active (ON) mode or from the active mode (ON) to the inactive mode (OFF), if the user moves his/her head left (right), left (right) movement is made between command items of the electrical device, and if the user shuts his/her mouth once, the predetermined command item is selected.

13. The method as claimed in claim 12, wherein the left (right) movement between the command items of the electrical device is performed only when the user moves his/her head from the center to the left (right) side.

14. The method as claimed in claim 11, wherein the step of analyzing further includes an initialization step of obtaining a time period and an average increase/decrease amount of the signal suitable for the user since the moving speed and angle of the head are different depending on users.

15. The method as claimed in claim 11, wherein the step of analyzing further includes an initialization step of setting the reference value and the length of the signal suitable for the user since the time and strength of the users who shut his/her mouth are different.

16. The method as claimed in claim 11, wherein the bio-signal is extracted from a predetermined number of electrodes attached to the user's body portion.

17. The method as claimed in claim 16, wherein the body portion is the forehead of the user.

18. The method as claimed in claim 16, wherein the number of the electrode is two.

19. The method as claimed in claim 18, wherein the two electrodes are positioned under “International 10-20 System of Electrode Placement”.

20. The method as claimed in claim 19, wherein the two electrodes are positioned at Fp1 and Fp2 locations of the forehead of the user.